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09/899,941	07/09/2001	Hyun-shik Cho	RPL-021	5945

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EXAMINER

PHINNEY, JASON R

ART UNIT PAPER NUMBER

2879

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/899,941

Applicant(s)

CHO, HYUN-SHIK

Examiner

Jason Phinney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-14 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 7, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 27 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The Amendment, filed on 6/27/03, has been entered and acknowledged by the Examiner.  
The addition of claims 17-19 has been entered.

### ***Drawings***

2. The proposed drawing corrections were received on 6/27/03. These proposed drawing changes are acceptable. When this application is placed in condition for allowance, applicant will be required to submit new formal drawings.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6 and 17-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by FR 2576452 to Nolan.

Regarding Claim 1, Nolan discloses a color cathode-ray tube (Figure 1, #10) comprising a panel (Figure 1, #18) having a fluorescent plane (Figure 1, #22) formed on the inner surface thereof, and a shadow mask arranged at the inner side of the panel, having a predetermined distance therefrom (Figure 1, #24), wherein the shadow mask has an effective area (Figure 2, #32) in which electron beam passage holes (Figure 2, #38) are formed and a non-effective area

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(Figure 2, #36) surrounding the effective area, and at least one half etching line (Figure 2, #44) is formed at the non-effective area of the shadow mask, and wherein at least one half etching line comprises a portion that extends a distance at least one of a length and a width of the effective area and is located in a same plane or a plane parallel to the effective area (See Figures 2 and 3).

Regarding Claim 2, Nolan further discloses that the half etching line should be formed on the surface of the shadow mask, opposite to the fluorescent plane (Figures 3 and 4, #'s 44 and 46).

Regarding Claim 3, Nolan further discloses that the half etching line should be formed to extend toward at least one of the shorter side, longer side and corner of the shadow mask (Figure 2, #44).

Regarding Claim 4, Nolan discloses that the non-effective area should be bent to have a skirt (Figure 4, #36) and the half etching line (Figure 4, #44) should be placed between the bent portion and the portion attached to the frame at the skirt (see Figures 1 and 4).

Regarding Claim 5 Nolan further discloses that the half etching line should be formed on both surfaces within the non-effective area of the shadow mask (Figure 4, #'s 44 and 46).

Regarding Claim 6 Nolan further discloses that the half etching lines should be alternately formed on both surfaces of the shadow mask (Figure 4, #'s 44 and 46).

Regarding Claims 2-6, it is elementary that mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter

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may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. Thus, the functional limitation of "the at least one half etching line increases a supporting strength of the shadow mask" is inherent to the Nolan reference under the principles of functional inherency.

Regarding Claim 17 Nolan discloses a shadow mask (Figure 2, #24) for a display panel comprising an effective area (#32) having beam passage holes (#38) and a non-effective area (#36) adjacent to the effective area, wherein at least one groove (#44) formed on the non-effective area which is parallel to the effective area extends a prescribed distance parallel to at least one of a length and a width of the effective area (See Figure 2).

Regarding Claim 18 Nolan further discloses that a cathode ray tube should enclad the shadow mask (Figure 1, #10).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2576452 to Nolan in view of U.S. Patent No. 6,407,497 to Lee.

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Nolan discloses all of the limitations of the color cathode-ray tube as claimed in Claim 1. It is elementary that mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. Thus, the functional limitation of “the at least one half etching line increases a supporting strength of the shadow mask” is inherent to the Nolan reference under the principles of functional inherency.

Nolan fails to exemplify that the panel should be a flat type whose outer surface is substantially flat and whose inner surface has a predetermined curvature.

Lee, in an alternate color cathode-ray tube teaches that the panel should be a flat type whose outer surface is substantially flat and whose inner surface has a predetermined curvature (see figure 3A) in order to produce a cleaner image, avoid distortion, and reduce eye fatigue (Column 1, Lines 33-35).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the flat panel of Lee with the cathode-ray tube of Nolan in order to produce a cleaner image, avoid distortion, and reduce eye fatigue.

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7. Claims 9-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 2576452 to Nolan.

Nolan discloses all of the limitations of the color cathode-ray tube as claimed in Claim 1. It is elementary that mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. Thus, the functional limitation of “the at least one half etching line increases a supporting strength of the shadow mask” is inherent to the Nolan reference under the principles of functional inherency.

Regarding Claim 9, Nolan discloses the claimed invention except for the limitation that the distance between the effective area and the half etching lines corresponds to 100-200  $\mu\text{m}$ . It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching line having at a distance of between 100 and 200  $\mu\text{m}$  from the effective area, since optimization of workable ranges is considered within the skill of the art.

Regarding Claim 10, Nolan discloses the claimed invention except for the limitation that the width of the half etching line falls within the range 50-100  $\mu\text{m}$ . It has been held that where

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the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching line having a width between 50 and 100  $\mu\text{m}$ , since optimization of workable ranges is considered within the skill of the art.

Regarding Claim 11, Nolan discloses the claimed invention including that there are at least two half etching lines (#44). Nolan fails to exemplify the limitation that the distance between the two half etching lines should range in distance from the thickness of the shadow mask to twice the thickness thereof. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching lines of Nolan having a distance between the two half etching lines ranging in distance from the thickness of the shadow mask to twice the thickness thereof, since optimization of workable ranges is considered within the skill of the art.

Regarding Claim 12, Nolan discloses the claimed invention except for the limitation that the distance between the two half etching lines should range from 100-150  $\mu\text{m}$ . It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching lines of Nolan having a distance between the two half etching lines ranging from 100-150  $\mu\text{m}$ , since optimization of workable ranges is considered within the skill of the art.



Regarding Claim 13, Nolan discloses the claimed invention except for the limitation that the etched depth of the half etching line should correspond to between 10-35% of the thickness of the shadow mask. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching line should correspond to between 10-35% of the thickness of the shadow mask, since optimization of workable ranges is considered within the skill of the art.

Regarding Claim 14, Nolan discloses the claimed invention except for the limitation that the depth of the half etching line falls within the range 15-45  $\mu\text{m}$ , instead teaching that it should be about 140  $\mu\text{m}$  by way of example. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching line having a depth between 15 and 45  $\mu\text{m}$ , since optimization of workable ranges is considered within the skill of the art.

Regarding Claim 19, Nolan discloses a color cathode-ray tube (Figure 1, #10) comprising a panel (Figure 1, #18) having a fluorescent plane (Figure 1, #22) formed on the inner surface thereof, and a shadow mask arranged at the inner side of the panel, having a predetermined distance therefrom (Figure 1, #24), wherein the shadow mask has an effective area (Figure 2, #32) in which electron beam passage holes (Figure 2, #38) are formed and a non-effective area (Figure 2, #36) surrounding the effective area, and at least one half etching line (Figure 2, #44) is formed at the non-effective area of the shadow mask, and wherein at least one half etching line comprises a portion that extends a distance at least one of a length and a width of the effective

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area and is located in a same plane or a plane parallel to the effective area (See Figures 2 and 3).

It is elementary that mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on. Thus, the functional limitation of “the at least one half etching line increases a supporting strength of the shadow mask” is inherent to the Nolan reference under the principles of functional inherency. Nolan discloses the claimed invention except for the limitation that the depth of the half etching line falls within the range 15-45  $\mu\text{m}$ , instead teaching that it should be about 140  $\mu\text{m}$  by way of example. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the half etching line having a depth between 15 and 45  $\mu\text{m}$ , since optimization of workable ranges is considered within the skill of the art.

#### ***Allowable Subject Matter***

8. Claims 7, 15, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

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Regarding claim 7, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation that the half etching line should have a rectangular shape surrounding the effective area.

Regarding claim 15, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 15, and specifically comprising the limitation that the radius of curvature of the corner of the half etching line should be between 0.8 and 3 mm.

Regarding claim 16, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 16, and specifically comprising the limitation that the length of the half etching line surrounding the corner of the shadow mask is above 60% of half the longer side or half the shorter side of the effective area of the shadow mask.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Phinney whose telephone number is (703) 305-3999. The examiner can normally be reached on M-F 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JP



Joseph Williams  
JP Williams

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